

# Santo D'Agostino

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## EDUCATION

Ph.D. (Mathematical Physics), University of Toronto, 2005

- thesis: *Group Duality and its Applications in Nuclear Physics*
- research in group representation theory and its physical applications

M.Sc. (Mathematical Physics), Queen's University at Kingston, 1984

- thesis: *Thin Spherical Shells in Spacetimes of Constant Curvature*
- research in general relativity

B.Sc. (Honours, Mathematics), Queen's University at Kingston, 1982

## PROFESSIONAL EXPERIENCE: TEACHING

Brock University Faculty Award for Excellence in Teaching, June 2015

Brock University Faculty of Mathematics and Science Distinguished Teaching Award, January 2015

Testimonials about my teaching may be found at <https://fomap.org/testimonials/>

ASSISTANT PROFESSOR, Physics Department, Brock University, May 2013–July 2020

INSTRUCTOR, Physics Department, Brock University, Jan. 2011–Apr. 2011

MANAGER OF MATHEMATICS DEVELOPMENT PROGRAMS, Mathematics Department, Brock University, St. Catharines, July 2008–Dec. 2010

- co-founder and co-leader of Brock Brain Benders, a mathematics enrichment program for high school students
- founder and leader of Archimedes Academy and Putnam Preparation, two mathematics enrichment programs for Brock University undergraduate students

ASSISTANT PROFESSOR, Mathematics Department, Brock University, Jan. 2007–June 2008

INSTRUCTOR, Mathematics Department, Brock University, Jan. 2005–Dec. 2006

LECTURER, Faculty of Mathematics, University of Waterloo, Sept. 1999–Dec. 1999

LECTURER, Dept. of Mathematics, Physics, and Computer Science, Ryerson Polytechnic University, Toronto, May 1993–Aug. 1995

INSTRUCTOR, Dept. of Mathematics, Centennial College, Scarborough, Sept. 1991–May 1993

INSTRUCTOR, Dept. of Mathematics, Centennial College, Scarborough, Aug. 1986–May 1987

MATHEMATICS AND SCIENCE TEACHER, Southern Ontario College, Hamilton, Aug. 1985–July 1986

- taught OAC calculus, algebra, physics, and chemistry; Grade 12 physics and chemistry
- taught special extra-curricular classes to prepare fifty students for provincial and national competitions in mathematics and physics

## COURSES TAUGHT AT BROCK UNIVERSITY

Jan.–April 2023	PHYS 1P21/1P91, Introductory Physics I
May–July 2020	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P22/1P92, Introductory Physics II
Sept. 2019–April 2020	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II FMSC 1P00, Transitioning to University Science PHYS 1P22/1P92, Introductory Physics II PHYS 5P30, Advanced Electromagnetism
May–July 2019	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P22/1P92, Introductory Physics II
Sept. 2018–April 2019	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Introductory Physics I PHYS 1P22/1P92, Introductory Physics II PHYS 3P94, Mathematical Methods in Physics
May–July 2018	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P22/1P92, Introductory Physics II
Sept. 2017–April 2018	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics PHYS 3P94, Mathematical Methods in Physics
May–July 2017	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Mechanics PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Sept. 2016–April 2017	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 3V94, Mathematical Methods in Physics
May–July 2016	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Sept. 2015–April 2016	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Mechanics and Introduction to Relativity
May–July 2015	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Sept. 2014–April 2015	ASTR 1P01, Introduction to Astronomy I ASTR 1P02, Introduction to Astronomy II PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics

May–July 2014	PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Sept. 2013–April 2014	ASTR 1P01, Introduction to Astronomy I PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
May–July 2013	PHYS 1P21/1P91, Mechanics and Introduction to Relativity PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Jan.–Apr. 2011	PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Jan.–Apr. 2010	PHYS 1P22/1P92, Electromagnetism, Optics, and Modern Physics
Jan.–Apr. 2009	MATH 1P06, Applied Calculus II MATH 1P97, Differential and Integral Methods
Sept.–Dec. 2008	MATH 1P05, Applied Calculus I MATH 2P03, Multivariate and Vector Calculus
May–July 2008	MATH 1P66, Mathematical Reasoning MATH 1P67, Mathematics for Computer Science
Jan.–Apr. 2008	MATH 1P02, Calculus Concepts II MATH 1P06, Applied Calculus II MATH 2P04, Basic Concepts of Analysis MATH 2P08, Ordinary Differential Equations
Sept.–Dec. 2007	MATH 1P05, Applied Calculus I MATH 1P66, Mathematical Reasoning MATH 1P98, Basic Statistical Methods MATH 2P03, Multivariate and Vector Calculus
Jan.–Apr. 2007	MATH 1P01, Calculus Concepts I MATH 1P02, Calculus Concepts II MATH 1P67, Mathematics for Computer Science MATH 2P04, Basic Concepts of Analysis
Sept.–Dec. 2006	MATH 1P98, Basic Statistical Methods (2 sections) MATH 2P03, Multivariate and Vector Calculus MATH 2P71, Introduction to Combinatorics
Jan.–Apr. 2006	MATH 2P04, Basic Concepts of Analysis MATH 2P13, Abstract Linear Algebra
Sept.–Dec. 2005	MATH 3P03, Real Analysis
May–July 2005	MATH 2P03, Multivariate and Vector Calculus
Jan.–April 2005	MATH 2P04, Basic Concepts of Analysis

## ACADEMIC AWARDS

OGSST Scholarship, University of Toronto, 1999–2000  
NSERC Post Graduate Scholarship, University of Toronto, 1997–1999  
Walter C. Sumner Fellowships, University of Toronto, 1997–1999  
Edward C. Stevens Awards, University of Toronto, 1997–1999  
University of Toronto Open Doctoral Fellowship, 1996–1997  
Van Kranendonk Teaching Award, University of Toronto, 1996–1997  
Reinhardt Fellowships, Queen’s University at Kingston, 1982–1984  
Rio Algom Awards, Queen’s University at Kingston, 1976–1980  
W.F. Morrissey Memorial Award, Queen’s University at Kingston, 1976

## SELECTED PUBLICATIONS

### Peer-reviewed published scientific papers:

- M.J. Carvalho and S. D'Agostino, Plethysms of Schur functions and the shell model, *J. Phys. A: Math. Gen.* **34** (2001) 1375–1392.
- M.J. Carvalho and S. D'Agostino, A Maple program for calculations with Schur functions, *Comp. Phys. Comm.* **141** (2001) 282–295.

### Papers delivered at conferences:

- The Brock University Mathematics Mastery Project (BUMMP), OAME, Brock University, 14 May 2010.
- Making a Smooth Transition from High-School Mathematics to University Mathematics, Fields Institute, Math-Ed Forum, February 2010.
- Improving Student Engagement in Large University Mathematics Lectures, Wilfrid Laurier University, Waterloo, 18 February 2009.
- Making a Smooth Transition from High-School Mathematics to University Mathematics, CMS Winter Meeting, Ottawa, 6 December 2009.
- Group Duality and its Physical Applications, 41st Western Regional Nuclear and Particle Physics Conference, Lake Louise, Alberta, 14 February, 2004.
- On Science and Spirituality, Delivered at the Fourth Interdisciplinary Conference on Knowledge Tools for a Sustainable Civilization, Ryerson Polytechnic University, Toronto, June 1995.

## PROFESSIONAL EXPERIENCE: EDUCATIONAL PUBLISHING

WRITER/EDITOR, June 1991–present

- wrote and edited university and high-school mathematics and science textbooks
- specialized in writing, content development, project management, copy-editing, proofreading, and technical checking

SENIOR EDITOR, Prentice-Hall Canada Inc., Scarborough, May 1990–May 1991

- edited math, science, and computing textbooks for Grades 7–OAC
- supervised freelance editors, proofreaders, researchers, and designers
- interviewed teachers and conducted research to shape projects

WRITER/EDITOR, Harcourt Brace Jovanovich of Canada, Toronto, Nov. 1986–July 1989

- wrote and edited mathematics and science textbooks
- worked with authors to develop their writing skills
- field tested textbooks

EDITOR, Gage Educational Publishing Company, Scarborough, May–Oct. 1986

- writer/editor for senior mathematics projects (Grades 9–12)

### Books/resources written or co-written:

Solution manual for Physics for Scientists and Engineers, Hawkes et al, (Nelson) ©2014  
Mathematics 10 (Nelson) ©2009  
Mathematics 9 (Nelson) ©2008

Calculus and Advanced Functions 12, CAB (McGraw-Hill Ryerson) ©2003  
Calculus and Advanced Functions 12 (McGraw-Hill Ryerson) ©2002  
Mathematics 8 (D. C. Heath) ©1996  
Mathematics 12 TRB (Addison Wesley) ©1992  
Mathematics 10 Principles and Process TRB (Nelson) ©1992  
Holtmath 12 TRB (Holt Rinehart and Winston) ©1990  
Holtmath 11 TRB (Holt Rinehart and Winston) ©1989

### **Selected list of books/resources edited or co-edited:**

Great Circle of Mysteries, by M.L. Gromov (Birkhäuser), ©2018  
50 Years with Hardy Spaces: A Tribute to Victor Havin, by Anton Baranov and Sergei Kisliakov (Birkhäuser), ©2018  
Algorithmic and Geometric Topics Around Free Groups and Automorphisms (Advanced Courses in Mathematics - CRM Barcelona), by Javier Aramayona and Volker Diekert (Birkhäuser), ©2017  
Lyapunov Exponents, by L. Barreira (Birkhäuser), ©2017  
College Physics, 2/e, Freedman et al (Freeman) ©2017  
Bernstein Operators and their Properties, J. Bustamente (Springer) ©2017  
Physics for Scientists and Engineers (Nelson) ©2014  
Complex Systems and Society, Marsan et al (Springer) ©2013  
Business Mathematics (McGraw-Hill Ryerson) ©2008  
Calculus (McGraw Hill) ©2006  
Foundations of Financial Management (McGraw Hill) ©2005  
Mathematics 8 (Nelson) ©2005  
Business Mathematics (McGraw-Hill Ryerson) ©2005  
Mathematics 7 (Nelson) ©2005  
Macroeconomics (McGraw-Hill Ryerson) ©2004  
Basic Statistics for Business and Economics (McGraw-Hill Ryerson) ©2003  
Elementary Statistics: A Step by Step Approach (McGraw-Hill) ©2003  
Statistical Techniques in Business and Economics (McGraw-Hill Ryerson) ©2003  
Physics 12 CAB (McGraw-Hill Ryerson) ©2003  
Calculus & Advanced Functions 12 (McGraw-Hill Ryerson) ©2002  
Applied Mathematics 10 (Addison Wesley Longman) ©1998  
Vector Calculus (Addison-Wesley) ©1997  
Latest News From the Cosmos (Stoddart) ©1997  
Mathematics 7 (D. C. Heath) ©1996  
Mathematics 8 (D. C. Heath) ©1996  
Introduction to Technical Statistics and Quality Control (Addison Wesley) ©1996  
Introduction to Linear Algebra for Science and Engineering (Addison Wesley) ©1995  
Introduction to Financial Accounting (Prentice Hall) ©1995  
Contemporary Business Statistics, 2nd edition (Prentice Hall) ©1995  
Calculus (Prentice Hall) ©1993  
STSC Chemistry (Nelson) ©1993  
Mathematics 7 (Harcourt Brace Jovanovich) ©1993  
Contemporary Business Statistics (Prentice Hall) ©1993  
Fundamentals of Physics, Combined edition (D. C. Heath) ©1992  
Alberta Chemistry 20/30 (Addison Wesley) ©1992  
Introduction to Microsoft Works (Prentice Hall) ©1991  
Physics in Action (Harcourt Brace Jovanovich) ©1990  
Science Plus 7 (Harcourt Brace Jovanovich) ©1989

Calculus (Holt Rinehart and Winston) ©1988  
Algebra and Geometry (Holt Rinehart and Winston) ©1988  
Finite Mathematics (Holt Rinehart and Winston) ©1988  
Holtmath 12 (Holt Rinehart and Winston) ©1988  
Holtmath 11 (Holt Rinehart and Winston) ©1988  
Mathematics 11 (Gage) ©1987